

# Rhodora

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## CONTENTS:

Reversions of the Fern-leaved Beech. <i>R. G. Leavitt</i> . . .	45
Plants of southeastern Connecticut,—IV. <i>C. B. Graves</i> . . .	48
Identity of <i>Anychia dichotoma</i> . <i>B. L. Robinson</i> . . .	50
Lists of New England Plants,—XIV. <i>A. Rehder</i> . . .	54
Notes on Publications recently received . . . . .	61
Meeting of the Vermont Botanical Club . . . . .	63

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## PARTIAL REVERSION IN LEAVES OF THE FERN- LEAVED BEECH.

R. G. LEAVITT.

THE European beech, *Fagus sylvatica*, has produced a number of varieties, of which several are in cultivation. These forms have almost surely originated by sudden saltatory changes; that is, by mutation. The varieties differ from the species in one or more characters which — at least in several of the varieties — may be transmitted by seed. The well-known purple beech is one of these offshoots from the specific stock. The original tree was discovered in Germany between the middle and the end of the eighteenth century, according to some, and in Loudon's day was said to be still standing. According to Loudon all the purple beeches cultivated in Europe in his time had been produced from this tree either by seed or by grafting. The seedlings come up tolerably true. Other varieties are *F. s. pendula*, *F. s. cristata* — the leaves small and tufted, the wood dark and curiously grained — and *F. s. asplenifolia*. The last named form, upon which some observations are made below, according to De Vries may be propagated by seed. It differs from the species in having narrowly elliptical or lanceolate leaves, variously cut, while the leaves of the species are, as a rule, broad and almost or quite entire. This form has originated, with little doubt, by mutation from the older type. Such "sports" are of special interest to students of evolution for the light they may possibly throw upon evolutionary processes.

One of the chief problems to be solved in working out the origin of species is whether new races arise by the accumulation of slight variations, or whether the alterations are more violent and sudden, so that new species are abruptly created with differentiating characters



fully formed. It is certain that now and again new races do appear suddenly. Many of them come reasonably true to seed; and in this fact lies an argument for the stability of the new forms. Nevertheless the period during which such matters have been subjects of inquiry is not long. What the results of protracted breeding experiments may be is as yet problematical. Granting that the newly appearing, or as they are called *mutational*, characters have a certain force as hereditary factors, it is yet to be ascertained whether the races produced by mutation do not of themselves ultimately return to the "normal," or original, type. If we conceive that the change of outward characters which signifies the occurrence of a mutation is the visible expression of an inversion or derangement of the constituents of the complex substance controlling the development of form, and in reproduction serving as the vehicle of hereditary traits, then it seems possible that after a time these constituents may regain their previous, or normal, arrangement and in consequence the original external characters be restored.<sup>1</sup>

The tendency of *Fagus sylvatica asplenifolia* to revert in certain parts is well known. De Vries speaks of frequent atavistic bud variation.<sup>2</sup> Carrière<sup>3</sup> figures a young shoot on one side of which all the branches bore exclusively leaves of the specific form. A tree growing at North Easton, Massachusetts, has manifested a still further localized and restricted resumption of original characters. Atavism has appeared not in one branch, or one bud, but in a part of a leaf, in many instances. In most cases about one quarter to one third of the lamina was thus affected, usually in the proximal part, occasionally in the distal, on one side or other of the midrib. These leaves were unsymmetrically developed, as will be seen from the accompanying figure, through overgrowth of particular regions of the blade. The unusual portions had entire or at most somewhat dentate margins. When the blades were applied to blades of the same length taken from the species, so that bases, apices, and midribs coincided as nearly as possible, the margins of the overgrown parts

<sup>1</sup> Students of our native flora may render good service to science by reporting and describing aberrant forms and by cultural experiments. Careful notes contributed to botanical journals would be of much value. Careful and full records of how the new or unusual forms behave in prolonged vegetative reproduction, in propagation by seed after pollination by their own pollen and after cross-pollination with the normal forms, are especially desired.

<sup>2</sup> De Vries, *Die Mutationstheorie*, I: 488.

<sup>3</sup> Carrière, *Production et Fixation des Variétés* (Paris 1865), p. 49.

of the varietal laminae very nearly coincided with the margins of the corresponding parts of the specific laminae. In lateral extent, in the angle between margin and midrib, and in the character of the margin, the parts in question agree nearly with parts similarly situated in leaves of the original type. There is therefore no doubt that we are here dealing with a reversion.

In the Figure — the original drawing for which was traced from the leaves themselves — the abnormal leaves of the variety are delineated in continuous line, the applied specific leaves in broken line. In the specimens as placed the right side of the lamina is true to the varietal type, showing the somewhat fern-like margin to which the variety owes its designation, *asplenifolia*. Specimens *a*, *b*, *c* have the proximal half or more of the left side extended to the limits habitual in the specific form, while the remainder is contracted in the manner of the variety. In specimens *a* and *c* the transition from one character to the other is abrupt; in *b*, gradual. In specimen *d* the region of disturbance is distal and includes not more than one eighth of the entire blade; in this part, however, the margin of the ancestral form is exactly matched except at the very apex of the blade, where the attenuation characteristic of the variety appears.

The sudden transition seen in specimens *a* and *c* is especially interesting and noteworthy.

It is to be observed that, as a close examination of the figure will show, the restoration of the original form is in no case perfect. While the old — the specific — predominates in a remarkable degree, the new is evidenced in some way in each atavistic section, either at the apex, as in *d*, or at the base, as in *a-c*, or throughout, as in *b*.



Both old and new form-giving factors are present and operative at once in the same field, and the actual figure imparted is a resultant. Whether reversions ever reproduce past and now relinquished structures with entire exactness is at least questionable.

Many leaves of the tree mentioned were of the same dual character as those here figured. In each blade as a whole the varietal character predominated, while partial atavism when present was shown in various degree. The examples found were not confined to a few branches but were well scattered, and occurred without any apparent rule.

AMES BOTANICAL LABORATORY, North Easton, Massachusetts.

#### NOTEWORTHY PLANTS OF SOUTHEASTERN CONNECTICUT,—IV.

C. B. GRAVES.

*Sisyrinchium intermedium* Bicknell. This species is represented in my herbarium by two collections: Ledyard, near Pine Swamp, June 7th, 1897, and New London, field near Ocean Beach, June 28th, 1902. The specimens differ from material at the Gray Herbarium, named by Mr. Bicknell, only in the color of the spathes which are greenish rather than purplish.

*Sisyrinchium albidum* Raf. A single plant of this species was collected May 27th, 1889, by Miss Ellen Coit, of New London, in a field near the New London-Waterford line. It was probably a stray individual, introduced perhaps in seed. The plant was given to me in the fresh state, and since then has lain in my herbarium. Its identification has been verified by comparison with material at the Gray Herbarium.

*Salix longifolia* Muhl. This species was first reported from Connecticut by Mr. C. H. Bissell, who found it near Glastonbury beside the Connecticut River (RHODORA, IV, 99). It may be of interest also to note its occurrence farther down the river at Selden's Cove, where it is frequent on the sandy levels bordering the creek.

I am informed by Mr. M. L. Fernald that in the Herbarium of the Royal Gardens, Kew, there are two sheets of *S. longifolia* collected



by the late Joseph Barratt and marked: (1) "In arid sands, Chatham, 2 feet high, Barratt"; (2) "Chatham sands, opp. Middletown on the Banks of the River Connt. 1834, Sept. Barratt."

*Salix pentandra* L. A single small tree of this species grows close to the shore of the Connecticut River a short distance north of Hadlyme Ferry. Its surroundings make it probable that it is spontaneous at that point.

*Maclura aurantiaca* Nutt. is spontaneous along a roadside north of the railroad station at Waterford, having escaped from the adjoining grounds.

*Rubus cuneifolius* Pursh was found by the writer in Sept., 1902, in a pasture near the Lyman Viaduct in the northwestern part of Colchester. This is, I believe, the first report of its occurrence east of the Connecticut River.

*Spiraea lobata* Jacq. is well established in a low brushy lot near the roadside about one mile east of Groton ferry, having probably escaped from a neighboring garden.

*Solidago Canadensis* L. var. *glabrata* Porter. This form grows on the low sandy levels bordering Selden's Cove in Lyme, where it was discovered July 29, 1902, by Messrs. C. H. Bissell, L. Andrews and the writer. So far as I am aware it has not hitherto been reported from Connecticut. At the date mentioned it was just coming into bloom, a surprising fact when it is considered that *S. Canadensis* is one of our late flowering goldenrods. It would be interesting to know whether the flowering seasons of these two forms show normally such a divergence in time.

*Lactuca Scariola* L. and its var. *integrata* Grenier & Godron, were found by me in the summer of 1902 growing on filled land adjoining Pequot Ave., New London. The species with its pinately lobed leaves is apparently rare. At this station it was much less abundant than the variety.

*Bidens aristosa* (Michx.) Britton. This western species has been detected at Norwich by Mrs. Elisha E. Rogers, and by the writer at South Windham and Lebanon.

For aid in verifying the determination of some of the plants noted above, I am under obligation to the authorities of the Gray Herbarium.

NEW LONDON, CONNECTICUT.

## THE IDENTITY OF ANYCHIA DICHOTOMA.

B. L. ROBINSON.

THE genus *Anychia* contains two easily recognizable although often confused species, both of which grow in New England. One of these, with fastigiately branched puberulent stems, lance-linear leaves, and numerous subsessile flowers, has long passed as *A. dichotoma*, Michx. The other, with more diffuse branching, elliptical leaves, and pedicillate flowers scattered in the forks, has according to varying ideas of specific lines and nomenclatorial principles been called *A. capillacea*, DC., *A. dichotoma*, var. *capillacea*, Torr., and *A. canadensis*, Britt., Sterns, & Poggenb. While recently in Paris, Mr. M. L. Fernald had an opportunity to examine the type specimen of Michaux's *A. dichotoma* and found it to be not, as generally supposed, the puberulent plant so called, but the glabrous diffuse one later characterized as *A. capillacea*. Mr. Fernald forwarded to the Gray Herbarium an excellent photograph of the type together with some notes and the suggestion that the literature of the two species should be re-examined in the light of this interesting discovery. When in London some weeks later Mr. Fernald also examined the extant specimen of the Linnaean *Queria canadensis*, and found it likewise to be the glabrous diffusely branched plant, and thus identical with the type of Michaux's *A. dichotoma*.

On turning to a copy of Michaux's *Flora*, long ago annotated by Dr. Gray, I find that he also had noticed the real identity of the Michauxian plant, as he had penciled the words "the capillacea" against the description of *A. dichotoma*. His note, however, was made at a time when in the broader interpretation of species, *A. capillacea* was regarded a mere form of *A. dichotoma*. Presumably for this reason he never published any mention of his observation on the type at the Jardin des Plantes.

It has long been clear, however, that our two *Anychias* are distinct species and it is a matter of interest to learn that Michaux's name *A. dichotoma* has been applied to the wrong one. In the light of the new information now at hand it will be necessary to change the names now current. Concerning the smooth diffusely branched plant, there can be no question. To those who use the first correct combination it must hereafter be *A. dichotoma*, Michx. Those, who



on the other hand prefer the earliest specific name, may continue to call the plant *A. canadensis*, Britt., Sterns, & Poggenb.

Concerning the other plant, namely the one with puberulent stems, the difficulty is greater. The only available names found in literature appear to be several of Rafinesque's, who in the *Atlantic Journal*<sup>1</sup> and *New Flora*<sup>2</sup> characterized no less than six species of *Anychia*, prefacing his treatment of the group in the latter publication by the following characteristic remarks: "The plants of this G[enus] and others akin forming a small natural group, have been blended with the G[enera] *Queria*, *Paronychia*, *Achyranthus* &c., their synonymy and sp[ecies] are in utter confusion. Having shown to Torrey 4 sp[ecies] widely different in habit, leaves and flowers! he pronounced them all varieties of *Queria canadensis*! They require as yet a monograph, and must be divided into 2 or 3 Genera by the stamens, that must all be examined again, since Michaux and Nuttall[1] differ about them. I regret that I did not examine all mine when met alive. Meantime I will divide them into 3 subgenera or Genera, and add some new species." *A. nudiflora*, Raf., is described as smooth and may be excluded from consideration on this ground. The other five, namely, *A. polygonoides*, *fastigiata*, *conferta*, *lateralis*, and *divaricata*, are all said to be puberulent or pubescent. Of these, the first published (if priority of position as well as of time be regarded) was *A. polygonoides*, which was characterized<sup>1</sup> as follows: "Stem dichotomous, lax, erect, puberulent; leaves patent, linear cuneate, acute, nearly smooth, stipules lanceolate; flowers solitary in dichotomy, subpedicellate, erect. From the mountains Alleghany, and estival like the three following [*A. fastigiata*, *conferta*, and *lateralis*], six inches high."

Every part of this description corresponds to the more loosely branched specimens of our puberulent-stemmed plant, and there can be no serious doubt that *A. polygonoides*, Raf., was what has long passed as *A. dichotoma*. Further proof, however, is to be found in a subsequent note<sup>3</sup> by Rafinesque, in which he states that his *A. polygonoides* is "*A. canadensis* of Nuttall and most of our botanists." This is significant, for at that time Nuttall, Torrey, De Candolle, and others had all mistaken the puberulent-stemmed plant for *Queria canadensis* of L. and *A. dichotoma* of Michaux., separating

<sup>1</sup> *Atlantic Journal*, i. 16 (1832).

<sup>2</sup> *New Flora*, iv. 41-43 (1836).

<sup>3</sup> *New Flora*, iv. 43.

from it as a variety or independent species the smooth-stemmed and broader-leaved *A. capillacea*, DC. That Rafinesque himself had a correct knowledge of these plants is shown by his further remark<sup>1</sup> that "The *A. capillaris* N[uttall] is the real *A. dichotoma*, of Mx. quite distinct by broad leaves elliptic, stem filiform smooth."

The only points in the description of *A. polygonoides*, which can raise any question, are the lax branching and subpedicellate flowers, but it must be remembered that Rafinesque employed these expressions only in a comparative way while endeavoring to separate several forms of the same plant, all regarded by Dr. Torrey as *Queria canadensis*. Fortunately authentic specimens of Rafinesque's *Anychias* were preserved in the Torrey Herbarium, and we have recent and critical authority in Dr. Britton's notes on the genus<sup>2</sup> for regarding *A. polygonoides*, Raf., as identical with the puberulent plant.

The species of *Anychia* should therefore stand as follows. As from habitual similarity they have been much confused, it seems best to cite specimens as well as synonymy pretty fully.

*A. DICHOTOMA*, Michx. Stem filiform, glabrous: leaves elliptical, thin: inflorescence diffuse; flowers distinctly pedicellate. — Fl. Bor.-Am. i. 113 (1803); Raf. New Fl. iv. 43. *Queria canadensis*, L. Sp. 90 (1753). *Q. dichotoma*, Moench, Meth. 351 (1794). *Q. capillacea*, Nutt. Gen. i. 159 (1818). *Q. canadensis*, var. *capillacea*, Eaton, Man. ed. 4, 422 (1824). *Q. canadensis*, var. *capillaris*, Britton, Bull. Torr. Bot. Club, xiii. 187 (1886). *Anychia dichotoma*, var. *capillacea*, Eaton, Man. ed. 6, 295 (1833). *A. capillacea*, DC. Prodr. iii. 369 (1828); Redfield, Bull. Torr. Bot. Club, vi. 61; Britton, *ibid.* xiii. 187; Wats. & Coult. in Gray, Man. ed. 6, 426. *A. capillaris*, Raf. (by clerical error), New Fl. iv. 43. *A. filiformis*, Raf. acc. to Britton, l. c. *A. canadensis*, Britt., Sterns, & Poggenb. Prelim. Cat. N. Y. 44 (1888); Britt. & Brown, Ill. Fl. ii. 40; Britt. Man. 405.— NEW HAMPSHIRE: Nottingham, 20 July, 1900, *A. A. Eaton*. VERMONT: Bellows Falls, 22 Aug. 1902, *Blanchard*; Pownal, 23 July, 1898, *Eggleston*; North Pownal, 11 Aug. 1902, *Blanchard*. MASSACHUSETTS: Danvers, 5 July, 1896, *Sears*; Melrose, 27 Sept. 1882, *Perkins*; on gravel, Pine Hill, Middlesex Fells, 21 July, 1895, *Charles Eliot*; Medford, 3 Aug. 1878, *Perkins*; damp rocky woods, Woburn, 28 July, 1895, *Rich*; sandy soil, Cambridge, 11 Sept. 1891, *Fernald*; on Snake Hill, Waltham, 13 Aug. 1866, *W. Boott*; Blue Hills Reservation, 11 Aug. 1894, *Manning*; roadside in shade, Sharon, 12 July, 1896, *Williams*; Highland Grove, Walpole, 20 Aug. 1878, *Young*. RHODE ISLAND: *Thurber*; Diamond Hill,

<sup>1</sup> New Fl. iv. 43.

<sup>2</sup> Bull. Torr. Bot. Club, xiii. 187.

20 Sept. 1884, *W. W. Bailey*. CONNECTICUT: in shade, not rare, Southington, *Andrews*, no. 797; woods, Southington, 15 Aug. 1901, *Bissell*; Pomfret, 4 July, 1901, *Driggs*. NEW YORK: Staten Island, 1855, *Thurber*. PENNSYLVANIA: Lancaster near Binkley's Bridge, 6 Sept. 1901, *Heller*; Allegheny, in hilly woods, *Ziegler*. DISTRICT OF COLUMBIA: wooded hillsides near Washington, 30 Jun. & 16 July, 1896, *Steele*. MARYLAND: in hb. Gray without locality. VIRGINIA: along the New River, Blue Bridge, 12 July, 1892, *Small*; Stony Man Mountain, *Steele*, no. 73. NORTH CAROLINA: Asheville, *Robinson*, no. 32; dry slopes, Buncombe County, *Biltmore distribution*, no. 5419a. KENTUCKY: Harlan Court House, *Kearney*, no. 10. OHIO: Perkins, 8 July, 1895, *Moseley*. ONTARIO: Essex County, 1891, *Dearness*; Leamington, 30 July, 1892, *Macoun*. ILLINOIS: Lansing, *A. Chase*, no. 863; Rock River, *Bebb*. MINNESOTA: on red bluffs of the upper Des Moines River, *Geyer*.

*A. POLYGONOIDES*, Raf. Stem puberulent: leaves lance-linear, of firmer texture: inflorescence lax to fastigate; flowers scarcely or not at all pedicelled.—*Atl. Journ.* i. 16 (1832). *A. canadensis*, Ell. Sk. i. 307 (1817), as to pl. descr. but not as to syn. *Queria canadensis*. *A. dichotoma*, DC. Prodr. iii. 369; Torr. & Gray, Fl. i. 172; Gray, Man. eds. 1–6; Britton, Bull. Torr. Bot. Club, xiii. 186; Britt. & Brown, Ill. Fl. ii. 40; Britton, Man. 405; not Michx. *Queria canadensis*, Nutt. Gen. i. 158 (1818). *A. fastigiata, conferta, & lateralis*, Raf. *Atl. Journ.* i. 16 (1832), from char. and acc. to Britton, Bull. Torr. Bot. Club, xiii. 187. ?*A. divaricata*, Raf. New Fl. iv. 42 (1836). *Paronychia canadensis*, Wood, Bot. and Flor. 58 (1870). — MASSACHUSETTS: Danvers, 14 Aug. 1887, *Sears*; W. Quincy, on wood roads, 11 Sept., 1894, *Rich*; road east of Great Dome, Blue Hills, *Manning*. CONNECTICUT: on railroad track, Norwalk, 6 Aug. 1894, *Averill*. PENNSYLVANIA: roadsides near the Delaware Water Gap, Oct. 1867, *C. F. Austin*; Safe Harbor, *Heller & Halbach*, no. 656; Allegheny, 21 July, 1889, *Ziegler*. DISTRICT OF COLUMBIA: Washington and vicinity, 17 Sept. 1896, *Steele*. VIRGINIA: Bedford County, 11 July, 1871, *Curtiss*; Massanuttin Mountain, *Heller & Halbach*, no. 1090; Stony Man Mountain, 30 Aug. 1901, *Steele*, nos. 72, 242. NORTH CAROLINA; Cullowhee, 1887, *Thaxter*; Asheville, *Robinson*, no. 30. FLORIDA: brackish shores, Duval County, *Curtiss*, no. 337 (form with exceedingly short puberulence, the sepals more conspicuously ciliated). ALABAMA: ex herb. J. Torrey; dry rich soil, 1858, ex herb. Dr. Short. TENNESSEE: upon woods, Henderson, *Bain*, no. 239. KENTUCKY: Poor Fork, *Kearney*, no. 198. OHIO: Oxford, 6 Aug. 1895, *Moseley*. ILLINOIS: Mt. Carmel, 1875, *Dr. Schneck*. ARKANSAS: sandy fields, *Harvey*, no. 16. KANSAS: open woods, Cherokee County, *Hitchcock*, no. 801. TEXAS: Dallas, June, 1873, *Reverchon*. ARIZONA (or New Mexico): *S. B. Parish*, no. 310.



PRELIMINARY LISTS OF NEW ENGLAND  
PLANTS,—XIV.<sup>1</sup>

ALFRED REHDER.

[The sign + indicates that an herbarium specimen has been seen; the sign — that a reliable printed record has been found.]

CORNACEAE.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
<i>Cornus alternifolia</i> , L. f. . . . .	+	+	+	+	+	+
“ <i>Amomum</i> , Mill. . . . .	+	+		+	+	+
“ <i>canadensis</i> , L. . . . .	+	+	+	+	+	+
“ <i>circinata</i> , L'Hér. . . . .	+	+	+	+	+	+
“ <i>florida</i> , L. . . . .	—	—	+	+	+	+
“ <i>paniculata</i> , L'Hér. . . . .	+	+	+	+	+	+
“ “ × <i>Purpusi</i> . . . . .				+		
“ <i>Purpusi</i> , Koehne. . . . .		+	+	+	+	+
“ <i>stolonifera</i> , Michx. . . . .	+	+	+	+		+
<i>Nyssa sylvatica</i> , Marsh. . . . .	+	+	+	+	+	+

CAPRIFOLIACEAE.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
<i>Diervilla Lonicera</i> , Mill. . . . .	+	+	+	+	+	+
<i>Linnaea borealis</i> , L. . . . .	+	+	+	+		+
<i>Lonicera canadensis</i> , Marsh. . . . .	+	+	+	+		+
“ <i>coerulea</i> , L. . . . .	+	+	+	+	+	+
“ <i>dioica</i> , L. . . . .	+	+	+	+	+	+
“ <i>hirsuta</i> , Eat. . . . .			+	—		
“ <i>japonica</i> , Thunb. . . . .						+
“ <i>Morrowii</i> , Gray . . . . .				+		
“ <i>oblongifolia</i> , Hook. . . . .	+		+			
“ <i>sempervirens</i> , L. . . . .	+			+	+	+
“ <i>tatarica</i> , L. . . . .	+		+	+		+
“ <i>Xylosteum</i> , L. . . . .					+	
<i>Sambucus canadensis</i> , L. . . . .	+	+	+	+	+	+
“ <i>racemosa</i> , L. . . . .	+	+	+	+	+	+

<sup>1</sup> Printed in RHODORA as supplementary material.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
<i>Symphoricarpus orbiculatus</i> , Moench. . . . .				+	+	
“ <i>racemosus</i> , Michx. . . . .	+	+	+	+	+	
“ “ <i>var. pauciflorus</i> Rob- bins . . . . .			+	+		
<i>Triosteum angustifolium</i> , L. . . . .						+
“ <i>aurantiacum</i> , Bickn. . . . .	+	+	+	+	+	+
“ <i>perfoliatum</i> , L. . . . .						+
<i>Viburnum acerifolium</i> , L. . . . .	+	+	+	+	+	+
“ <i>alnifolium</i> , Marsh. . . . .	+	+	+	+	+	+
“ <i>cassinoides</i> , L. . . . .	+	+	+	+	+	+
“ <i>dentatum</i> , L. . . . .	+	+	+	+	+	+
“ <i>Lentago</i> , L. . . . .	+	+	+	+	+	+
“ <i>nudum</i> , L. . . . .						+
“ <i>Opulus</i> , L. . . . .	+	+	+	+		+
“ <i>pauciflorum</i> , Pylaie . . . . .	+	+	+			
“ <i>prunifolium</i> , L. . . . .						+
“ <i>pubescens</i> , Pursh. . . . .			+			+
“ <i>venosum</i> , Britton . . . . .				+		

## NOTES ON THE ABOVE LIST.

*Cornus Purpusi*, Koehne<sup>1</sup> is a recent segregate of *C. Amomum* Miller (*C. sericea*, L.) and was first described from plants raised in Germany from seeds collected near Toledo, Ohio, by C. A. Purpus. It is chiefly distinguished from *C. Amomum* by the numerous papillae on the epidermis on the under side of the leaves which appears therefore glaucous, while in *C. Amomum* the epidermis is perfectly smooth and the color of the under side usually green. Other characters of *C. Purpusi* are the generally narrower leaves, cuneate at the base and with only 4 to 5 or rarely 6 pairs of veins usually furnished with pale pubescence, the smaller flowers and inflorescence and its more appressed pubescence, the paler color of the branches, the but slightly ribbed stone and the usually much paler often almost whitish fruit. The habit of the shrub is looser and especially the more or less pendulous leaves give it a distinct appearance from *C. Amomum* which has broader leaves with 4 to 8 pairs of veins and a usually rounded base and stouter petioles. *Cornus Purpusi* ranges from

<sup>1</sup> Gartenfl. 48: 338 (1899); Mitt. Deutsch. Dendr. Ges. 12: 48 (1903); Rehder in Sargent's Trees & Shrubs 1: 77, pl. 40 (1903).

New England westward through the Lake region and the Central States, while *C. Amomum* is strictly Alleghanian. In New England both species occur and intermediate forms are occasionally met with.

*Cornus paniculata*  $\times$  *Purpusi* = *C. Arnoldiana*, Rehder<sup>1</sup> is a hybrid which originated spontaneously in the Arnold Arboretum. As the two parent species grow not unfrequently together in New England, it is to be expected that this hybrid will be found elsewhere. It is probably best described as a *Cornus paniculata* with the branches of last year purplish instead of grayish.

*Cornus stolonifera* has been reported from Rhode Island, but the only specimen I have seen under this name from that state proved to be *C. Amomum*.

*Linnaea borealis*. The American plant has been distinguished from the type which occurs in Europe and Northern Asia as *L. borealis*, var. *americana* (*L. americana*, Forbes). It is, however, hardly specifically distinct as considered by Britton in his Manual. The only locality known in Rhode Island where it had been collected by S. T. Olney has long been obliterated (see RHODORA 2: 218).

*Lonicera canadensis*. This species is better known under the name *L. ciliata*, Muhlenberg, but since Marshall's name is about 30 years older and the species is recognizable from his description, it has to supersede Muhlenberg's later name.

*Lonicera coerulea*. The American plant, at least that of northeastern North America, belongs to *L. coerulea*, var. *villosa*, Torrey & Gray, which varies greatly in the pubescence and shape of the leaves. It is chiefly distinguished from the type by its more or less upright winter buds and the glabrous campanulate corolla.

*Lonicera hirsuta*. The only specimens I have seen from the New England states were collected near Middlebury, Vermont, by E. Brainerd. No specimen from the type locality, which is Williamstown, Mass., could be found in any of the herbariums consulted. At the time of its discovery by Eaton, about 85 years ago, it seems to have been plentiful there, for he says in his Manual (ed. 6, p. 210) that two miles west of Williams College he saw "hundreds in flower climbing the trees and shrubs of an elevated ridge or hill in the summer of 1817." If the wood where Eaton found it has not entirely disappeared, the plant probably still exists there and a thorough search at the flowering time, about middle of June, in the region

<sup>1</sup> Rehder in Sargent's Trees & Shrubs 1: 79, pl. 39 (1902).



described might lead to the rediscovery of this species at its type locality. Eaton also mentions that it had been found later near Worcester, Mass., and Middlebury, Vermont. At the latter locality it was rediscovered by E. Brainerd in 1880 (Herb. Univ. Vermont).

*Lonicera oblongifolia*. Specimens under this name from Rhode Island collected by W. W. Bailey near Olneyville proved to be the European *L. Xylosteum*.

*Lonicera japonica*, *L. Morrowii*, *L. sempervirens*, *L. tatarica*, and *L. Xylosteum*, also *Symphoricarpus orbiculatus*, Moench (*S. vulgaris*, Michaux) have been found escaped from cultivation and well established. As several of them have maintained themselves for a considerable time and are spreading and those which have been observed but recently will in all probability do likewise, they ought not to be omitted from an account of the flora of New England. *L. japonica* which is, according to Mr. C. H. Bissell, a not uncommon escape along the coast of Connecticut was found last year also in Massachusetts by Mr. L. A. Wentworth of Lynn who informs me that he discovered at Essex a large number of plants of this species along a roadside some distance from any habitation.

*Sambucus racemosa*. The American plant is often considered a distinct species, *S. pubens* Michaux (*S. racemosa*, var. *pubens*, Koehne), chiefly distinguished by its pubescence from the glabrous European type.

*Triosteum perfoliatum*. This species seems to occur only in Connecticut; all specimens from other states I have seen proved to be *T. aurantiacum*.

*Viburnum alnifolium*. From Rhode Island I have seen no specimen but one from S. F. Olney's herbarium (Herb. Brown Univ.) As this had been collected probably about 60 years ago, the locality may now possibly be obliterated.

*Viburnum nudum* has been found only in Connecticut. All specimens from other states named *V. nudum* which I have seen, belonged to *V. cassinoides*.

*Viburnum Opulus*. From the European type the American plant differs chiefly in the open shallow groove and the smaller more numerous glands of the petiole and in the orange red, not scarlet fruit. It has been distinguished as *V. americanum*, Miller (*V. Opulus*, var. *americanum*, Aiton).

*Viburnum prunifolium*. Besides the type there has been found in

Connecticut near Greenwich, a form with smaller globose fruits, *V. prunifolium*, var. *globosum*, Nash (Herb. C. H. Bissell).

*Viburnum pubescens*. As this species occurs in Vermont and Connecticut, it may be looked for in western Massachusetts. It has been reported but probably erroneously from New Hampshire (W. S. Harris, Flora of the town of Windham, p. 17). A specimen I received as *V. pubescens* from New Hampshire (Herb. Dartmouth Coll., Hanover) proved to be *V. acerifolium*.

*Viburnum venosum*. Under this name Britton has recently separated the northern form of *V. molle* of Gray (*V. scabrellum*, Chapman) from the form of the southern states which he takes for the type. Though the morphological characters by which the two species are distinguished appear rather slight, both are quite distinct in their general appearance and seem really less closely related to each other than *V. venosum* is to *V. dentatum*. As regards the name *V. molle* which has been left to the southern form, a closer study of the matter has led me to the conviction that *V. molle* of Gray and subsequent authors is not the *V. molle* of Michaux, but the *V. dentatum*, var. *semitomentosum*, Michaux, while the typical *V. molle*, Michaux, is identical with the species recently described as *V. Demetrionis*. Although *V. molle*, Gray, if *V. venosum* is considered a distinct species, is not included in the flora of New England, I suppose it will not seem out of place to insert here the following notes intended to make clear the somewhat confused synonymy of *V. molle*, especially as it will show conclusively that the name *V. molle* can never be used for the New England plant.

VIBURNUM MOLLE, Michaux, Fl. 1: 180 (1803). *V. Demetrionis*, Deane & Robinson, Bot. Gaz. 22: 167, pl. 8 (1896); 24: 436 (1897); Britton & Brown, Ill. Fl. 3: 231, fig. 3441 (1898); Britton, Man. 871 (1901).

This species has been found only in Kentucky and Missouri.

It had always seemed improbable to me that Michaux really should have considered one and the same species, even if represented by somewhat different forms, as a variety of *V. dentatum* and also as a distinct species allied to *V. Opulus*, and as furthermore the description of *V. molle*, Michaux, did not fit very well the *V. molle* of Gray, I concluded to follow the matter up. Mr. Fernald to whom I spoke about it before he left for Europe last summer, kindly promised me to look up the species in Michaux's herbarium. He brought back a

good photograph of Michaux's type which enabled me, almost as well as if I had had the specimen itself, to study the characters of *V. molle*; a close examination made it soon apparent that it could not be identical with *V. molle* of Gray, as the petioles are stipulate and the venation and serration of the leaves perceptibly different. Of the species with stipulate petioles *V. Demetrionis* seemed to be the most similar and indeed its deeply cordate leaves and their venation and serration agrees perfectly with Michaux's specimen; also Michaux's description, especially as regards "fructibus oblongo-ovatis" and "cortice quotannis laceratim deciduo" fits *V. Demetrionis* exactly, but not at all *V. molle* of Gray. Michaux also apparently observed the stipules and for this reason characterized it as a "*V. Opulus foliis indivisis.*" To make the evidence conclusive the *V. molle* has been recently rediscovered at the type locality, Danville, Kentucky, by Mr. Boynton of Baltimore and Mr. C. D. Beadle remarked in a letter regarding this discovery that the specimen look much like *V. Demetrionis* and that Michaux's description likewise agrees very well with that species. A specimen which he sent a short time afterwards to the Arnold Arboretum leaves no doubt that Boynton's specimen is identical as well with Michaux's *V. molle* as with *V. Demetrionis*.

VIBURNUM BRACTEATUM, Rehder in Sargent's Trees & Shrubs 1: 135, pl. 68 (1903). *V. molle*, Chapman, Fl. ed. 3. 190 (1897), not Michaux.

This species is known only from the cliffs of the Coosa River near Rome, Georgia. It differs from *V. molle* chiefly in its conspicuous bracts, the semiorbicular calyx teeth, the shorter petioles, the remotely and shallowly dentate leaves and the close bark.

VIBURNUM semitomentosum, comb. nov. *V. dentatum*  $\beta$  *semitomentosum*, Michaux, Fl. 1: 179 (1803). *V. dentatum*  $\beta$ ? *scabrellum*, Torrey & Gray, Fl. 2: 16 (1841). *V. scabrellum*, Chapman, Fl. 172 (1860). *V. molle*, Gray, Man. ed. 5, 206 (1867); Syn. Fl. 1, 2: 11, in part (1884); Britton & Brown, Ill. Fl. 3: 231, in part, fig. 3440 (1898); Dippel, Handb. Laubholz. 1: 184, in part (1889); not Michaux. *V. molle*, var.? *tomentosum*, Chapman, Fl. ed. 3, 190 (1897).

This species is distributed from Kentucky to Florida and Texas. It differs from *V. venosum* by the thinner and fewer veins, the shallower often crenate dentation with fewer and larger obtusish teeth, the oval or ovate rarely orbicular leaves generally truncate at the



base, the larger flowers and fruits and the reddish brown branches. Gray quotes "*V. dentatum semitomentosum* Michx., in part" as well under his *V. molle* as under *V. pubescens* and refers to the latter species, Michaux's specimens from Lake Champlain, but as Michaux himself excludes those specimens from his var. *semitomentosum* and quotes in his Flora as locality only "in Carolinae inferioris dumetosis," it seems hardly correct to quote part of his var. *semitomentosum* as synonymous with *V. pubescens*.

VIBURNUM VENOSUM, Britton, Man. 871 (1901); Rehder in Sargent's Trees & Shrubs 1:85, pl. 43 (1903). *V. molle*, Gray, Syn. Fl. 1, 2:11, in part (1884); Dippel, Handb. Laubholz. 1:184, fig. 115, in part (1889); Watson & Coulter in Gray, Man. ed. 6, 218, in part (1890); Sargent, Gard. & For. 4:29, fig. 8 (1891); Zabel, Möller's Deutsch. Gärtn.-Zeit. 6:267, fig. (1891); Koehne, Deutsch. Dendr. 537 (1893); not Michaux. *V. Hanceanum*, Dippel, l. c. 176, fig. 107 (1889), not Maximowicz.

This species ranges from eastern Massachusetts to Pennsylvania and Delaware, and reappears in a peculiar form in S. Carolina. It differs from the preceding species chiefly in the more numerous and more prominent veins, the acute callous-tipped and more numerous teeth, the generally subcordate leaves, glabrous or nearly so above, those below the inflorescence suborbicular, the smaller flowers and fruits and the grayish or yellowish brown branches. In European gardens it has long been in cultivation and is occasionally met with as *V. pubescens*, *V. nepalense* and *V. asiaticum*. The two following varieties merit distinction.

V. VENOSUM, var. **Canbyi**, var. nov. Differs from the type by its thinner, less pubescent leaves, often only pubescent along the midrib beneath, especially those below the inflorescence much larger, often 5 to 8 cm. broad and the larger inflorescence like the young branchlets only slightly pubescent. This is apparently the form mentioned by Torrey & Gray in their Flora as intermediate between *V. dentatum* and *V. dentatum scabrellum*. Some remarks regarding the pubescence in the description of *V. dentatum* by Darlington<sup>1</sup> and by Beck<sup>2</sup> refer probably also to this form.—DELAWARE, Wilmington, July 2 and Aug. 22, 1902, Christiana, Aug. 25, 1902, New Castle, July 2, 1902, *W. M. Canby*. PENNSYLVANIA, Westchester, Oct. 8,

<sup>1</sup> Fl. Cestr. ed. 2, 203 (1837).

<sup>2</sup> Bot. U. S. 145 (1856).

1902, *W. M. Canby*, Mt. Hope, June 24, 1901, *A. A. Heller*. S. W. VIRGINIA, July 16, 1892, *J. K. Small*. This form has been for many years in cultivation at the Arnold Arboretum, where it was received under the name *V. laevigatum* from the nursery of Parsons & Son, Flushing, Long Island. As an ornamental shrub it is superior to *V. dentatum* and *V. venosum* on account of its larger corymbs and larger dark green foliage and more vigorous habit.

*V. VENOSUM*, var. *longifolium*, comb. nov. *V. dentatum*, var. *longifolium*, Dippel, l. c. 183 (1889); Koehne, Deutsch. Dendr. 537 (1893). *V. longifolium*, "Loddiges" Zabel, in Beissner, Schelle & Zabel, Handb. Laubholz-Ben. 441 (1903). This form known only in cultivation differs in its narrower and longer leaves, pubescent on both sides, more densely beneath, with single or forked hairs. In the plant cultivated at the Arnold Arboretum the inflorescence and the young branchlets are glabrous, but as Dippel and Koehne say that they are either glabrous or pubescent, I am inclined to refer here a *Viburnum* collected by Dr. Mellichamp in 1878 near Bluffton, S. C. (herb. Gray) which has the inflorescence and the young branchlets stellate-tomentose, but agrees otherwise with the cultivated plant.

#### ARNOLD ARBORETUM.

### NOTES ON PUBLICATIONS RECENTLY RECEIVED.

Professor T. C. Porter's long expected (now alas posthumous) *Flora of Pennsylvania* is at hand,<sup>1</sup> having been edited and provided with analytical keys by Dr. J. K. Small, the nephew of author. The work is an excellently printed royal octavo volume of 362 pages enumerating no less than 2201 species. It is restricted to the spermatophytes and the sequence of orders and families is essentially that of Engler & Prantl's *Natürlichen Pflanzenfamilien*. However, several departures from this arrangement are made, and not always with happy results. Thus the *Compositae* are divided, as by several recent writers, into three families, the *Cichoriaceae*, *Ambrosiaceae*, and *Compositae*. About the practical value of this division there will of course be a difference of opinion, but if it is made, there would certainly

<sup>1</sup> *Flora of Pennsylvania* by Thomas Conrad Porter, D. D., LL. D. Ed. by John Kunkel Small, Ph. D. Ginn & Co., Boston, 1903.

seem to be no reason for inverting the sequence and placing the *Cichorieae* before, *i. e.* below the *Compositae* proper. It is one of the cardinal principles of the modern and very philosophic German system of plant arrangement, that the complex shall come after the simple, as having in all probability developed subsequently. Now, it cannot be doubted that a highly zygomorphic corolla such as is found in the *Cichorieae*, is a more complicated structure in the sense of being a wider departure from primitive simplicity, than is the regular corolla of the *Eupatorieae*, etc. It is easy to believe that the asymmetrical corolla of the *Cichorieae* has arisen from the more common regular form by a gradual one-sided splitting, but it is quite difficult to conceive that the highly zygomorphic corolla was the primitive form. It should be remembered also that the *Cichorieae*, provided as they are with an elaborate latex system, have a more complex anatomy than the other *Compositae*, which is an added reason for considering them of later development.

The nomenclature and delimitation of groups is in conformity with the practice of the school of botany which has been called the "Neo-American." This will naturally be a matter of regret to many of Dr. Porter's friends, who perceive that even after ten years' trial by some American botanists the Rochester nomenclature is no nearer acceptance by the great European systematists. One of the alleged merits of the reform system applied in Dr. Porter's flora is, we believe, its consistency, yet in turning the pages one is struck with obvious incongruities. For instance, many well established names have been discarded on account of the so-called doctrine of homonyms, yet *Cornus candidissima*, Marsh. (1785) is maintained quite without regard to the earlier '*C. candidissima*, Mill. (1769). *Erysimum* is kept up as a good genus resting upon the last of its four Linnaean species, yet *Stellaria*, which if similarly treated would have to rest upon *S. cerastioides* and to stand for what is now called *Cerastium*, is wholly suppressed and the genus *Cerastium* although of later publication is allowed to stand. *Agrimonia striata*, a name which Michaux gave to a Canadian plant, is arbitrarily transferred to a species ranging from Connecticut southward. It is needless to multiply such examples. Those here mentioned are selected because they have all been previously and quite without effect called to the attention of the reform school. A small slip in authority, originating doubtless in a typographical error, but handed on from publication



to publication, is that of ascribing *Melilotus alba* to Desvaux instead of Desrousseaux its real author. The local distribution of each species and variety within the limits of Pennsylvania is stated with remarkable completeness and unquestioned accuracy, but the same cannot be said for the more general ranges given. This is, of course, a secondary feature in a local flora, and therefore some incompleteness or slips in stating extra-limital ranges should be readily condoned, yet surely surprise must be felt when a plant so noteworthy and so much discussed as our dwarf mistletoe is assigned a range which does not include a third part of the territory over which it is known to extend. However, notwithstanding the defects here mentioned, the work as a whole is a noble monument of untiring and lifelong effort to understand thoroughly and record accurately a rich and interesting flora. Dr. Small's addition of keys contributes a feature which must have cost no inconsiderable labor and will be appreciated by those who use the book in the field.

Under the title Contributions from the Ames Botanical Laboratory, No. 1, Mr. Oakes Ames has just issued a valuable and well illustrated paper on some orchids of southern Florida. The observations relate chiefly to specimens recently collected by Mr. A. A. Eaton. It is to be hoped that this carefully prepared paper is the forerunner of an extended series of similar contributions concerning a family of plants long in need of an American specialist.

Dr. W. F. Ganong in the Educational Review of St. John, New Brunswick, xvii. 196, has published an excellent article upon plant-nomenclature.

Bulletin 103 of the Vermont Agricultural Experiment Station, a joint publication by Professor L. R. Jones and other members of the staff, deals with the Maple Sap Flow. Although it contains much tabular matter, embodying the results of extensive experimentation, the whole subject is clearly discussed in language so free from technicalities that the bulletin will be a practical and valuable guide to maple sugar makers, not only in Vermont but throughout the range of the industry. — B. L. R.

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MEETING OF THE VERMONT BOTANICAL CLUB.— The ninth annual winter meeting of the Vermont Botanical Club was held at Burlington January 21-22, with President E. Brainerd in the chair. The follow-

ing papers were read:— Wild Flowers of California, Mrs. H. F. Grout; Fruiting Season of the Hair-cap Moss, Miss P. M. Towle; The Brandon Nature Club, Miss C. W. Ormsbee; Ferns of Greensboro, Miss H. M. Hodge; Progress of Nature Study in the Vermont Schools, Supt. W. E. Ranger; A School-garden in its relation to Nature Study, Miss S. T. Palmer; A Trip to the Farallone Islands, Mrs. E. B. Davenport; Soil as a Factor in Plant Distribution, Professor W. J. Morse; Flow of Sap in the Sugar Maple, Professor L. R. Jones; The Importance of the Study of Plants when in Fruit, President E. Brainerd; New Plants added to the Flora of Burlington, Mrs. N. F. Flynn; Work of the Fairbanks Museum, Miss D. I. Griffin; On Goldie's Fern and on the Ginseng, F. A. Balch; Ferns in the vicinity of St. Johnsbury, Miss B. M. Rooney; On the Shrubby Cinquefoil, A. H. Gilbert; Botanical Prizes in connection with School work, A. J. Eaton; A Small Matter of Color, Miss S. H. Bliss; Poisonous Plants of Vermont, W. W. Gilbert; The Pogonias about Burlington, F. A. Ross. The annual address was given by Dr. Marshall A. Howe of the New York Botanical Garden and was entitled Plant Life of the Sea. This exceedingly interesting lecture was illustrated by more than a hundred exquisitely colored photographs prepared by the late Cornelius Van Brunt and projected by stereopticon. The officers of the Club were unanimously re-elected and a new executive committee created. As in former years the Club met simultaneously with the Vermont Bird Club and during some of the exercises the two clubs sat in joint session. A very pleasant feature of the meeting was a supper at "The Heights" at which about forty members and guests assembled. It was decided to hold the summer meeting at Lake Dunmore, on the 12th and 13th of July.

*Vol. 6, no. 62, including pages 25 to 44, was issued 17 February, 1904.*

## BOTANICAL PUBLICATIONS

**SYNOPTICAL FLORA OF NORTH AMERICA**, by A. GRAY and others. Vol. I. Fascicles 1 and 2. A critical treatment of forty-five families of polypetalæ (*Ranunculaceæ* to *Polygalaceæ*) 1895-1897. \$5.20.—GRAY HERBARIUM of Harvard University, Cambridge, Mass.

**FLORA OF MT. DESERT ISLAND, MAINE**, by EDWARD L. RAND and JOHN H. REDFIELD. With a Geological Introduction by WILLIAM MORRIS DAVIS. 1894. And a new map of the Island. 1901. Price \$2.00, post free.—Address EDWARD L. RAND, 53 State Street, Boston, Mass.

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